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ABSTRACT

Gender differences in academic performance among university athletes at a school in Division I of the National Collegiate Athletic Association were studied, using correlational and regression analysis. Data were obtained for 519 athletes (69% male and 31% female) for fall 1980 through spring 1984. High school and college academic performance of athletes were considered, including: high school and college grade point average (GPA), aptitude test scores, a measure of intensity and commitment to athletic participation, and whether the student was on academic probation or left school for academic reasons. No direct relationship was found between gender and university academic performance. However, significant relationships were found between gender and intervening variables, such as intensity of athletic involvement and athletic scholarship assistance. A number of inequities between men's and women's athletic programs were identified. In particular, scholarships awarded to athletes and program budgets were inequitably distributed. Implications for additional research, such as the complexity of the relationship between gender, athletic participation, and academic performance, are briefly considered. A literature review is included, as well as a bibliography and several tables. (SW)

SCHOLASTICS AND INTERCOLLEGIATE SPORT PARTICIPATION: MALES AND FEMALES*

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Running Head: GENDER, ACADEMICS AND ATHLETES

Ab.

This paper investigates gender differences in academic performance among university athletes at an NCAA Division I school. Using correlational and regression analyses, the study demonstrates that while there is not a direct relationship between gender and university academic performance, there are significant relationships between gender and intervening variables, such as intensity of athletic involvement and athletic scholarship assistance, which point to inequities between men's and women's athletic programs. Implications for academic and athletic programs are discussed.

Gender, Academic Performance and University Athletes

Athletic participation is receiving a great deal of research attention as a correlate of university academic performance. After much neglect, systematic research on this relationship is beginning to emerge (Purdy et al., 1982; Henschen and Fry, 1984). The salience of the correlation betwee athletic participation and university academic performance is heightened in light of recent abuses in athletic and academic programs. For example, some athletes have received credit for courses never taken, transcripts have been altered, and some student athletes are advised to register for "easy" courses (Axthelm, 1980). Despite the recent attention directed toward athletic participation and academic performance, there is no clear and consistent evidence that athletes do not do well academically at the university.[1] Furthermore, few studies address the issue of gender differences in academic performance among university athletes (but see, Purdy et al., forthcoming; Berlage, 1983). This is a serious omission. Title IX legislation mandates greater equity in funding of men's and women's athletic programs. What is the correlation between athletic participation and academic performance for men? What is the character of this relationship

for women? There is no reason to assume that the relationship between athletic participation and academic performance is the same for male and female athletes.

There is little research on women athletes for a variety of reasons. First, much of the controversy surrounding student athletes pertains to participants in "revenue" sports--these players are, for the most part, males. Secondly, it is often assumed that women athletes experience the world of sport and the world of academe in the same ways that their male counterparts do. Consequently, studies which include only male subjects are purported to apply to athletes generally. This reasoning, we argue, is inappropriate.

Using data from the records of over 500 university athletes at an NCAA Division I school, we investigate the relation between gender, high school academic performance, athletic participation, and university academic performance. Before testing these relationships, it is important to examine previous research, theoretical concerns and measurement issues.

Unresolved Issues

Inconsistent and conflicting findings characterize the research on athletic participation and academic performance. These inconsistencies are less prevalent for secondary school

athletes--high school athletes tend to do well academically compared to the general student population (Snyder and Spreitzer, 1983). The inconsistent findings are most pronounced for university athletes.

Several studies indicate that university athletes perform better academically than do nonathletes. Findings at various institutions, such as the University of Pittsburgh (Billick, 1973), the University of Minnesota (Pilapil et al., 1970), Stanford (Michener, 1976), Michigan State University (Shapiro, 1984), and the University of Utah (Henschen and Fry, 1984), provide evidence for this position. It has been suggested that athletic participation socializes players to develop high aspirations and motivation to achieve in the classroom. Further, academic officials and athletic personnel emphasize the importance of scholastic achievement (Snyder, 1972).

Research findings from other institutions, such as Notre Dame (Sack and Thiel, 1979), North Texas State University (Harrison, 1976), the University of New Mexico (1980), and Colorado State University (Purdy et al., 1982), indicate that scholastic performance of athletes was well below the achievement of the general student population. It is suggested that athletes are not well prepared for post-secondary academic work, that

athletes have major time and energy commitments to sport without serious involvement in academic work, and that coaches do not adequately counsel athletes academically (Edwards, 1973; Eitzen and Sage, 1982; Coakley, 1982). Moreover, researchers note that athletes who did well in high school will not necessarily fare well in their post-secondary work (Purdy et al., 1982).

Within this research framework, few studies have investigated female athletes. Henschen and Fry (1984) did note that female athletes involved in nationally recognized sports tended to graduate at a rate below the general student population but commensurate with male athletes playing "revenue" sports. In addition, Purdy et al., (1982, forthcoming) found that while athletes do less well academically than the general student population, female athletes scored significantly higher than male athletes in all areas of academic achievement except the ACT examination.

While research on the relationship between athletic participation and academic performance is characterized by inconsistent findings, the salience of this research focus is recognized by the National Collegiate Athletic Association (NCAA) which recently revised its academic standards for athletes. Although much of the documented abuse of athletic and academic

programs by athletes involve male players, there is some concern that as Title IX brings greater parity between men's and women's athletics, women's athletic programs may experience more academic trouble.

Methods

Before introducing measures of concepts, it is necessary to describe our data, which come from university records at an NCAA Division I school. Data on the athletic participation of athletes (N=519; 69 percent of whom are males and 31 percent of whom are females[1] and on their scholarship assistance were obtained from the university's athletic departments. The university's records office supplied us with academic and demographic data on the students in our study.[2] Records of student athletes were analyzed for the period of Fall, 1980 through Spring, 1984.

Variables

The concepts employed in this study fall under three general categories: (1) high school academic performance, (2) athletic participation, and (3) university academic performance. All of the variables included in this study are found in the research literature on athletic participation and academic performance

(Eitzen and Sage, 1982; Coakley, 1982; Snyder, 1972; Schafer and Armer, 1968; Bend, 1968).

High school academic performance variables measure secondary school achievement: high school grade point average (HSGPA) and a variable termed SCOR which is a standardized measure of performance on college entrance exams (i.e., ACT or SAT).[3] Measures of high school performance are included since there is evidence that high school athletes do well academically, but this positive performance diminishes during post-secondary schooling (Purdy et al., 1982).

Athletic participation measures are: highest percentage of athletic scholarship awarded during an academic quarter (AID) and, LVAL, a measure of intensity of and commitment to athletic participation.[4] University academic performance (UAP) is a scale measure of university grade point average (UGPA) and whether a student received academic probation or left the university for academic reasons (NOPD).[5] The α reliability coefficient of the UAP scale is .6. Our interest is in examining any gender differences in academic performance among university athletes.

Methods of Analysis

Initially we generated a zero-order correlation matrix for all athletes (Table 1). Secondly, we generated two additional

zero-order correlation matrices, one for male and one for female athletes (Table 2). Correlation coefficients vary between the matrices in Table 2. Moreover, the standard deviation of variables between males and females show substantial variability. We took these findings as preliminary evidence that gender exercises an influence on academic performance among university athletes in our study.[6] We estimated a regression model to focus on gender differences.

Table 1 About Here

Table 2 About Here

Results

The regression model including the coefficients from estimating the equation (UAP = $\underline{a}$ + $\underline{b}_1$ LVAL + $\underline{b}_2$ AID + $\underline{b}_3$ SCOR + $\underline{b}_4$ HSGPA + $\underline{b}_5$ GENDER) is presented in Figure 1. The most striking finding is that gender is not directly related to university academic performance. Gender is, however, indirectly related to university academic performance through the influence

of HSGPA and LVAL. University academic performance is directly related to HSGPA and LVAL (Figure 1).

Insert Figure 1 About Here

University academic performance is influenced directly by SCOR, HSGPA and LVAL. This means that athletes who do well in secondary school are likely to do well academically at the university. This relationship holds for athletes and nonathletes alike (Snyder and Spreitzer, 1977). The more interesting finding is that intensity of and commitment to athletic involvement (LVAL) is positively correlated with university academic performance. An increase in athletic participation is related to enhanced academic performance at the university.

LVAL is directly influenced by AID and GENDER. As athletic financial assistance increases, it is more likely that an athlete will be committed to sport involvement. This finding is not altogether surprising aid tends to be awarded to athletes who are expected to play well. The more challenging finding is that GENDER is related to LVAL. Female athletes are more likely than their male counterparts to be extensively involved in sport participation. One explanation is that women's teams are "lean";

without relatively large rosters, women players participate to a greater extent than males.

AID is negatively influenced by HSGPA and GENDER. Those who do well in secondary school are less likely to receive the degree of athletic financial assistance received by students who performed less well. That women athletes receive less athletic scholarship assistance than males is reflected in Figure 1. Even changes brought about by implementation of Title IX do not erase inequalities between males and females concerning financial assistance. Much of the aid goes to "revenue" sports players (e.g., football and basketball); and the majority of these athletes are males.

Finally, females tended to do better in secondary school than males. Interestingly, athletes' performances on the ACT or SAT were independent of gender.

Discussion

This study did not find a significant, direct relationship between gender and academic performance among university athletes. This is not to say that men's and women's athletic programs are equal. Male athletes tend to receive more athletic scholarship assistance than female athletes. This finding is particularly striking when "type of sport" is controlled.[7]

Insert Table 3 About Here

Table 3 shows that females receive less AID than males, except for "nonrevenue" sports. In "nonrevenue" sports, females are more likely to receive AID than males. Consider, however, that the mean amount of AID for revenue sports players is 78 percent of total university costs. For nonrevenue sports players, the mean amount of AID is 44 percent (s = .38 in both instances). Table 4 reiterates the point that gender differences in AID are exacerbated by the type of sport in which an athlete participates.

Insert Table 4 About Here

It was noted previously that female athletes are more likely than their male counterparts to letter in their respective sports. This does not necessarily indicate that women athletes are more committed to sport involvement than males. Rather, this finding highlights further inequities in men's versus women's athletic programs. Men's teams are more able financially to carry large rosters. The larger the roster, the less likely it is that any

given player will letter, since lettering is predicated upon time played. Women's teams are "leaner"; women athletes letter at a relatively higher rate than males. It is interesting to note that LVAL is positively related to university academic performance. Athletes intensely involved in sport do well at the university.

Conclusions

Our focus has been on gender differences in academic performance among university athletes. While the present study does not reveal a direct relationship between gender and university academic performance, the data do suggest a number of inequities between men's and women's athletic programs at the university. In particular, AID to athletes and program budgets are inequitably distributed.

Our findings suggest several caveats and further research. First, while our study was conducted at an NCAA Division I school, that university is not a "power school" in intercollegiate athletics. Perhaps studies at nationally ranked schools would reveal different results. Nonetheless, we note that most colleges and universities are not "power schools." It is not necessarily warranted to equate findings from serious contender schools with what is sociologically important and interesting.

Secondly, the ambiguous findings reported in the sport sociology literature on athletic participation and academic performance may be due to factors unique to various types of institution. A fruitful avenue for further research would be to identify some of those factors, such as tutorial assistance, racial composition of athletic programs, or athletic department budgets.

Lastly, more longitudinal work needs to be done to assess the changes in women's athletic programs since the implementation of Title IX. Henschen and Fry (1984) and Purdy et al. (forthcoming) predict that as women's athletic programs develop under Title IX, they will likely go the way of men's departments and experience increases in athletic and academic program abuses.

Our findings suggest that the connection between gender and university academic performance is not an obvious and direct relationship. Gender influences salient intervening variables, such as athletic involvement and scholarship assistance, which, in turn, affect university academic performance. Social scientists interested in gender and sport would do well to examine the concepts that we develop in this paper. To do otherwise is to miss the complexity of the relationship between gender, athletic participation and academic performance.

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Footnotes

[1]For a discussion of the two perspectives, see Farrell (1984) and Purdy et al. (1982). Farrell suggests that athletes do as well as the general student population academically while Purdy and associates argue that athletes do significantly more poorly than the general student population.

[2]Of 11,544 students at Utah State University, 42 percent are female and 56 percent are male.

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[3]The variable SCOR is calculated by dividing the SAT or ACT score received by the total number of points possible on either.

[4]The variable LVAL equals the number of years an athlete lettered divided by the number of years an athlete participated in the sport.

[5]The UAP variable is a scale additively constructed from two variables: University grade point average (UGPA) and no probation and no leaving the university (NOPD). UGPA is measured on a scale of 0.0 to 4.0. NOPD is constructed from two item scores. Item one is "did the student receive academic probation?"; a "yes" response is scored zero, a "no" response is scored one. Item two is "did the student then leave the university?"; a "yes" response is scored zero, a "no" response is scored one. NOPD = (score on item one + score on item two) * 2. UAP = UGPA + NOPD. UAP scores may vary from 0 to 8.

[6]In order to estimate coefficients from regression analysis, a number of assumptions are required. Zero-order correlation matrices were generated to demonstrate that no multicollinearity among variables exists. The homoscedasticity assumption is met. Homoscedasticity refers to stability of variance in a dependent variable across independent variables. In regression analysis, residuals indicate the homogeneity or heterogeneity of variance. The model developed in Figure 1 is constructed on theoretical grounds. We are interested in the effects of gender, secondary school performance and athletic participation on university academic performance. All variables in the regression equations are identified as salient in the research literature (Coakley, 1982; Eitzen and Sage, 1982; Purdy et al., 1982, forthcoming).

[7]Type of Sport is categorized as "revenue" versus "nonrevenue." Revenue sports for men are football and basketball. For women, these sports are basketball and softball. The determination for categorization was based on program budgets and national recognition of teams.

Table 1

Zero-Order Correlations Between Variables Used in the Analysis of All Athletes Together with Means and Standard Deviations

Variable	UAP	LVAL	AID	SCOR	HSGPA	SEX	M	SD
UAP	1.00						5.88	1.53
LVAL	.20*	1.00					.59	.52
AID	-.03	.30*	1.00				.63	.41
SCOR	.34*	-.04	-.13	1.00			.48	.15
HSGPA	.38*	.01	.21*	.48*	1.00		2.86	.61
SEX	.14*	.31*	-.17*	.11	.32*	1.00	1.32	.47

Note. Variables: UAP = University Academic Performance; LVAL = number of years an athlete lettered divided by number of years an athlete participated; AID = highest percent grant received; SCOR = ACT or SAT divided by total number of points possible on either; HSGPA = high school grade point average; SEX = gender of athlete. N = 512.

*$p < .01$.

Table 2

Zero-Order Correlations Between Variables Used in the Analysis of Male Athletes and Female Athletes Together with Means and Standard Deviations

						Males		Females	
Variable	UAP	LVAL	AID	SCOR	HSGPA	M	SD	M	SD
UAP		.22*	.02	.28*	.32*	5.74	.47	6.19	1.30
LVAL	-.09		.43*	-.08	-.03	.52	.47	.96	.61
AID	-.11	-.10		-.22*	-.19*	.67	.43	.51	.34
SCOR	.54*	-.07	.23*		.48*	.48	.17	.48	.13
HSGPA	.50*	-.22	-.04	.53*		2.74	.60	3.20	.52

Note. The bottom left diagonal gives the intercorrelations among variables for female athletes; the top right diagonal constitutes the male athlete matrix. (Males = 354 and Females = 158).

*$p < .01$

Table 3

Regressions of AID on GENDER for Type of Sport Categories

All Sports (N = 510)

AID Regressed on GENDER

β = -.139 b = -.119 (.04)

Revenue Sports (n = 282)

AID Regressed on GENDER

β = -.291 b = -.261 (.05)

Nonrevenue Sports (n = 228)

AID Regressed on GENDER

β = .169 b = .124 (.05)

Note. β is the standardized regression coefficient. b is the unstandardized regression coefficient. The standard error of b appears in parentheses following the coefficient.

Table 4

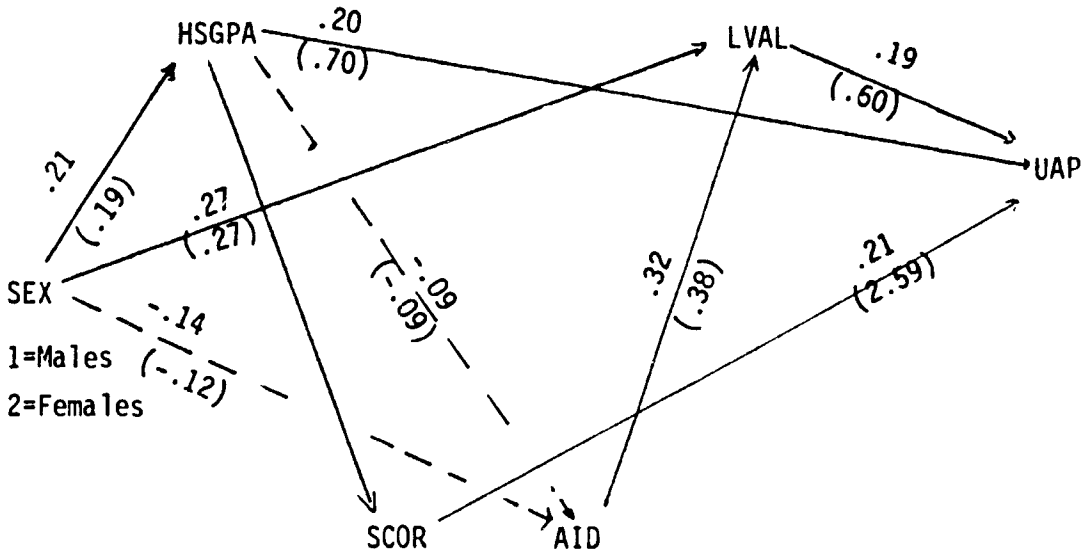
Comparison of AID on GENDER Regression Coefficients for Type of Sport Categories

	Revenue/Nonrevenue
Difference	.385
t-value	8.65*

Note. *$p < .001$.

Figure 1

Regression Model Analyzing Gender Differences in Athletic Involvement and Academic Work



Note. Unstandardized regression coefficients appear in parentheses. All relationships represented in this model are significant at $p < .05$. Solid path arrows indicate significant positive relationships; broken path arrows indicate significant negative relationships.